

**REMARKS**

Claims 1-15 and 18-23 are pending in the present application.

***Claim Amendments***

By this amendment, claims 1, 3, 6, 13, 14 and 15 are amended. Support for the amendment of claim 1 resides in the third paragraph of page 7 of the specification. New claims 19-23 are added. No new matter is added by this amendment.

***Rejection under 35 USC 112 (paragraph one)***

Claims 1-11, 13-15 and 18 stand rejected under 35 USC 112 (paragraph one) as failing to comply with the written description requirement. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

In support of the rejection, the Examiner takes the position that the specification, while teaching the recited dtex for the fibers, fails to provide support for a fiber length of 2-15 mm. Applicants direct the Examiner's attention to page 12, lines 13-15 of the specification where such support resides.

The rejection is thus without basis and should be withdrawn.

***The Present Invention and Its Advantages***

The present invention is directed to a cleaning sheet, which comprises a non-woven fabric having 10 to 90% by weight of thick thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 10 to 150 dtex, 1 to 50% by weight of thin thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 0.5 to 5 dtex and 10 to 90% by weight of cellulosic fibers, said non-woven fabric having a number of tips of said thick thermoplastic fibers forming the non-woven fabric exposed on the surface of said cleaning sheet to have capability of scouring or scraping dirt off of a soiled surface, wherein said number of tips of said thick thermoplastic fibers is 20-4000/cm<sup>2</sup>, having intersections of said thick thermoplastic fibers, and the intersections of said thick and thin fibers, being bonded by fusion or with a binder. *(See claim 1.)*

The present invention is also directed to a cleaning sheet, comprising a first layer of non-woven fabric having 10 to 90% by weight of thick thermoplastic fibers, said thick thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 10 to 150 dtex, 1 to 50% by weight of thin thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 0.5 to 5 dtex and said non-woven fabric having a number of tips of said thick thermoplastic fibers forming the non-woven fabric exposed on the surface of said cleaning sheet in the range of 20 to 4000/cm<sup>2</sup>, and a second layer

comprised of 10 to 90% by weight of cellulosic fibers, wherein said thick thermoplastic fibers are bonded at intersections thereof. (*See Claim 13.*)

The cleaning sheet according to the present invention exhibits excellent scouring or scraping properties against soil by its use of a non-woven fabric containing 10 to 90% by weight of thick thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 10 to 150 dtex, and 1 to 50% by weight of thin thermoplastic fibers having a fiber length of 2 to 15 mm and a fineness of 0.5 to 5 dtex and 10 to 90% by weight of cellulosic fibers, wherein 20 to 4000/cm<sup>2</sup> tips of the thick fibers are exposed on the surface of the cleaning sheet. In addition, the cleaning sheet according to the present invention does not scratch a surface to be cleaned.

Applicants respectfully submit that the references relied on by the Examiner fail to teach or suggest the present invention and therefore are unable to accomplish the advantages of the present invention.

**Rejection of Claims 1, 9-10, 13-15 and 18 Under 35 USC 103(a)**

Claims 1, 9-10, 13-15 and 18 stand rejected under 35 USC 103(a) as obvious over JP 2000-212866 (JP '866) in view of JP 03-279452 or JP 02-112460. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

None of the cited art relied on by the Examiner teach or provide for a cleaning sheet as instantly claimed and in no way provide any motivation to arrive at the same.

More particularly, none of the cited art teach or provide for a cleaning sheet containing the combination of (i) 10 to 90% by weight of *thick thermoplastic fibers* having a fiber length of 2 to 15 mm and a fineness of 10 to 150 dtex, (ii) 1 to 50% by weight of *thin thermoplastic fibers* having a fiber length of 2 to 15 mm and a fineness of 0.5 to 5 dtex (iii) 10 to 90% by weight of cellulosic fibers, and (iv) wherein 20 to 4000/cm<sup>2</sup> tips of the *thick fibers* are exposed on the surface of the cleaning sheet.

Further, not only does the nonwoven fabric have intersections of the thick fibers, but intersections of the thick and thin fibers (see amended claim 1). The respective intersections of fibers are bonded by fusion or with a binder. This prevents the thick fibers from falling off, while improving scraping properties of the material.

JP '866 teaches a fiber mat comprised of cellulosic fibers and heat-bondable synthetic fibers. The mat may also be bonded or laminated to another mat comprised of synthetic or natural fibers.

The mat of JP '866 may be nonwoven, which may be an air-laid nonwoven fabric, containing heat-fusible bicomponent fibers and cellulosic fibers. The nonwoven fabric is used for a wipe for absorbing liquid and a liquid

absorber. It is known in the art that conventional heat-fusible fibers do not exhibit high strength of thermal bonding to cellulosic fibers, since synthetic resins have a low affinity to cellulose.

To the contrary, the heat-fusible fiber of the reference is characterized by high strength of thermal bonding to cellulosic fibers. In other words, JP '866 is characterized by the use of a special heat-fusible bicomponent fiber having high affinity to cellulose. The reference is silent with respect to removing soil from a solid surface by scouring or scraping by thick fibers. The reference also fails to teach or suggest the use of thick and thin fibers in combination, together with cellulosic fibers.

While JP '452 and JP '460 are cited to teach the combination of thick and thin fibers in a textile sheet which may be a non-woven sheet, the references are silent with respect to the presence of cellulosic fibers in the sheet.

In addition, the sizes of the thick and thin fibers disclosed in these two references do not fall within the claimed range. For example, in Example 1 of JP '460, a melt-blown polypropylene fiber of 1.7  $\mu\text{m}$  (thin fiber) and a polyethylene fiber of 2.5  $\mu\text{m}$  (thick fiber) are used. These fiber sizes correspond to 0.002 dtex for the melt-blown polypropylene fiber and 4.4 dtex for the polyethylene fiber, based on the density of 0.9  $\text{g}/\text{cm}^3$  for polypropylene and 0.92  $\text{g}/\text{cm}^3$  for polyethylene.

In Example 1 of JP '452, a melt blown polypropylene/polyethylene fiber of 2.0  $\mu\text{m}$  (thin fiber) and a polypropylene fiber of 6 deniers (thick fiber) are used. These fiber sizes correspond to about 0.002 dtex for the melt-blown polypropylene/polyethylene fiber and 6.6 dtex for the polypropylene fiber.

Claim 13 is amended to more clearly correspond to the embodiment of Figure 2 – i.e., a nonwoven fabric having a first layer having 10-90% by weight of thick thermoplastic fibers (as defined) and 1-50% by weight of thin thermoplastic fibers (as defined), and a second layer comprised of 30 to 100% by weight of cellulosic fibers, with the first layer having a number of tips of the exposed thick fibers in the range of 20 to 4000/cm<sup>2</sup>.

The embodiment of claim 13 is also neither disclosed nor suggested by the cited prior art.

In view of the above, it is clear that the cited prior art, taken either singly or in combination, fails to teach or suggest the claimed invention.

Accordingly, since the cited art references do not teach or otherwise provide for each of the limitations recited in the pending claims, it follows that the cited art cannot render obvious the same. Likewise, because the cited art references do not provide any motivation for that would allow one of ordinary skill in the art to arrive at the instant invention as claimed, they cannot support an obviousness rejection of either one of independent claims 1 and 13.

The rejection is thus without basis and should be withdrawn.

**Rejection of Claims 2 and 11 Under 35 USC 103(a)**

Claims 2 and 11 stand rejected under 35 USC 103(a) as obvious over JP 2000-212866 (JP '866) in view of JP 03-279452, JP 02-112460 and Kakiuchi et al. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

The deficiencies of the primary references are discussed at length above. The additionally-cited Kakiuchi et al reference does not cure such deficiencies, and the rejection should be withdrawn.

**Rejection of Claims 3-8 Under 35 USC 103(a)**

Claims 3-8 stand rejected under 35 USC 103(a) as obvious over JP 2000-212866 (JP '866) in view of JP 03-279452, JP 02-112460 and Kobayashi et al. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

The deficiencies of the primary references are discussed at length above. The additionally-cited Kobayashi et al reference does not cure such deficiencies, and the rejection should be withdrawn.

In view of the above, the application is believed to be in condition for allowance. An early indication of same is earnestly solicited.

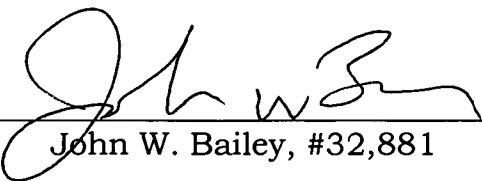
If any questions remain regarding the above matters, please contact Applicant's representative John W. Bailey (Reg. No. 32,881), at the phone number listed below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

A check in the amount of \$120.00 is submitted herewith as payment for the requested one month extension of time.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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